Origins40

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> Beautiful Bird Song
- why evolution cannot account for it 02

> Designer-made Defence
- our incredible immune system 05

> Showcase for Millions of Years?
- white-water adventure in Grand Canyon 10

> The BBC's Noah's Ark Fiasco
- a response to the media critics 16

> In God's Image
- the specialness of mankind 18

> Creation and Science Education
- threat or opportunity? 19

Editorial: About…turn!

"Darwin is off the curriculum for Serbian schools". Thus the *Daily Telegraph* (9th September 2004) reported the decision of Ljiljana Colic, the Serbian Education Minister, to suspend the teaching of Darwin's theory of evolution for 14-year-old pupils in the last year of primary school. According to the newspaper report, the country's schools would be allowed to reinstate Darwinism in the curriculum "only if they balance it with lessons on creationism – the Old Testament belief in human descent from Adam and Eve."

Colic – a member of the Orthodox Church – acknowledged that her decision had been influenced by her religious beliefs. She said, "Darwinism is a theory as dogmatic as the one which says God created the first man."

Unsurprisingly the minister's decision prompted a furious backlash from some academics. A lecturer at Belgrade University, Nikola Tucic, declared the decision "outrageous" and a "disaster".

And it did not take long for Colic's opponents to force a climb-down.

The very next day it was being reported that Vojislav Kostunica, the Serbian Prime Minister, had stepped in to overrule his Education Minister and reverse her decision. "Charles Darwin is still alive", joked Deputy Education Minister Milan Brdar.

This case demonstrates once again the powerful grip that Darwin's theory has on the world of education and academia. Dissent is simply not permitted and those who step out of line are quickly ostracised or made to retreat. And this is happening not only in Serbia – we can point to similar occurrences in our own nation.

Witness the opprobrium heaped upon schools like Emmanuel College in Gateshead where critical thinking about Darwinism is encouraged among students.

The "free thinkers" do not seem too keen on "free thinking" when it comes to origins. But when everyone is forced to march in step in this way, we must ask: is this the mark of a healthy education system?

Paul Garner

Reference

De Quetteville, H. (2004). Darwin is off the curriculum for Serbian schools. *The Daily Telegraph*, 9th September, p.19.

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"Darwin is off the curriculum for Serbian schools"

Contents

Popular Issue: February 2005

Articles

02 **Beauty in the blackbird's song**

Most of us will have spent time in a garden or a wood listening to the birds singing. But perhaps we have never stopped to consider how extraordinary bird song really is. Be prepared to be amazed as Stuart Burgess uncovers the evidence for design in the song of the blackbird – pointing us to the graciousness of our Creator.

05 **The immune system:**
designed to interact with microbes

Our immune system performs a vital function in a fallen world by protecting us against the agents of disease. But what was the purpose of the immune system before the creation was cursed because of sin? Biologists Alan Gillen and Frank Sherwin offer some intriguing thoughts on this subject.

10 **The Grand Canyon adventure – part one**

The usual explanation for the rock layers of Grand Canyon involves slow processes operating for more than one billion years. But is there a better explanation? In May 2004, Paul Garner went on a white-water raft trip with the Institute for Creation Research to investigate. In part one, join Paul as he sets out on a remarkable journey through the world's greatest geological wonder.

16 **Demolishing a straw ark:**
The BBC's *Noah's Ark* fiasco

Is it possible to build a wooden boat as large as the ark? Could Noah really have collected and accommodated all those animals? Is there enough water on the Earth for a global inundation? According to Jeremy Bowen, presenter of BBC TV's *Noah's Ark* programme, the answer to each question is 'no'. In this article, Paul Garner takes a look at Bowen's arguments and shows that they misrepresent the facts.

18 **The foundations of our faith.**
4: The doctrine of man – part one

According to evolutionary theory, man is an evolved ape, a by-product of natural selection. But the biblical view of man could hardly be more different. Scripture tells us that mankind is special – made in the image of God. John Peet continues his series on foundational issues by looking at what the Bible teaches about the nature of man.

Meeting report

19 **Creationism:**
Science Versus Faith in Schools

In December 2003, *The Guardian* newspaper held a one-day seminar for teachers, scientists, and philosophers examining the impact of creationism on science education in a multi-faith society. Paul Garner presents a report and draws some conclusions about how we can best engage with this ongoing debate.

21 **Obituaries**

David C.C. Watson
William D. Burrowes
Walter Lang

Book reviews

22 *Letter to an Influential Atheist*

The Man Who Found Time: James Hutton and the Discovery of the Earth's Antiquity

Total Truth: Liberating Christianity from its Cultural Captivity

The Guide: Creation – Chance or Design?

Beauty in the blackbird's song

Stuart Burgess

Introduction

Beauty can be an important evidence of design, especially when there is beauty for beauty's sake (Burgess, 2002). Evolutionists acknowledge that nature sometimes contains beauty for beauty's sake, as with display feathers and bird song. Charles Darwin considered the existence of beauty to be a serious problem for his theory of evolution because beauty can be so conspicuous that it often makes it much easier for a predator to find its prey.

To overcome the problem of beauty, Darwin invented the theory of sexual selection (1871, p.412). The theory of sexual selection proposes that males and females sometimes have preference genes whereby they prefer their mates to have certain characteristics. The forces of sexual selection are supposedly so strong that the advantage of having a characteristic which a partner prefers can outweigh the advantages of having a survival characteristic such as camouflage. A closely related theory to sexual selection is that of male-male competition. In this theory, males compete with each other in order to win a mate and only those males with certain characteristics, such as strong antlers, are able to win the competition.

In the case of bird song, it is usually the male bird that sings. As with display feathers, it is too dangerous for a female to display beauty because a female is confined to a nest for long periods. Evolutionists believe that bird song has evolved mainly due to male-male competition rather than female preference. The reason for this is that the main function of bird song is not to attract females but to defend a territory against rival males. Whereas the breeding season may be just a few weeks in duration, territory must be defended throughout the year. Evolutionists argue that singing gives male birds a survival advantage because it helps them to avoid territorial fighting. By singing to other males of the same species, this supposedly frightens them away before there is the possibility of physical contact. By avoiding physical contact, this supposedly makes a male bird better placed to produce offspring (Catchpole and Slater, 1995, p.122).

The theory of sexual selection has always been controversial. No one has proved whether preference genes actually exist. Even if preference genes do exist, there is still a major problem in that no one can explain why partners should prefer a 'beautiful' feature in their mating partner. Since preference genes are supposedly caused by random mutations, there is no reason why sexual selection should produce beautiful patterns rather than ugly patterns. The problem of why beauty should be preferred is particularly acute for bird song because the theory of male-male competition proposes that males are frightened by the 'beauty' of the songs of rival males. Since most animals simply growl at rivals to fend them off, there is a very serious question for the theory of evolution: why do birds need to sing 'beautiful' songs in order to fend off rivals?

The bird voice

The sound-producing organ of the bird is called the syrinx. It is the equivalent of the human voice box or larynx. Like the larynx, the syrinx contains delicate membranes which vibrate and generate sound waves when air from the lungs passes over them. Whereas humans have one set of vibrating membranes in the larynx, songbirds have two sets of membranes in the syrinx. The human larynx is located at the top of the trachea (the tube between the two bronchi and the throat) and so receives air from both lungs. In contrast, the bird membranes are located at the top of each bronchus (the two tubes between the lungs and the trachea) and so each set of membranes receives air from each lung independently.

Amazingly, each of these voice mechanisms has independent nerve connections with the brain so that the bird can simultaneously produce different sounds from each voice. The production of song requires sophisticated control from the brain, especially since a song may contain up to several dozen notes per second.

Beauty in music

Beauty in music can be produced by attributes such as melody, rhythm, harmony, variety and unity or any combination of such attributes. Melody is produced by a series of agreeable and varied notes; rhythm is produced by a pattern of regular beats; harmony is produced by a combination of notes; variety is produced by changes in pattern; and unity is produced by having a consistent theme throughout a piece of music. These attributes are very real attributes. Therefore, even though the beauty of a piece of music cannot be quantified, and even though the perception of beauty is partly an emotional response, beauty in music is a very real thing.

Beauty in music is an important evidence of intelligent design because beautiful music cannot be produced by accident. Attributes such as melody, rhythm and harmony require skilful and creative planning by an intelligent source. The fact that musicians and composers must study for many years, learning about the technical aspects of music, shows that beautiful music cannot just appear by chance.

Bird song

Apart from the human voice, birds produce some of the purest and most beautiful sounds known to man. Bird song has inspired some of the greatest classical music composers and writers. More recently, scientists have been astounded by the singing abilities of songbirds.

Songbirds make two types of sound: calls and songs. Calls are short and simple sounds that have the purpose of communicating a simple message, such as a warning signal or distress signal. In contrast, songs are long and complicated and can have a great deal of musical content. At first, it may appear as though songbirds produce random notes. However, careful listening to songbirds reveals that their songs are not random at all. For example, if a particular songbird is studied over several days, it will be found that the same song is repeated with great accuracy on different occasions. In general, it is the male bird that sings, although there are species where both males and females sing.

The blackbird

Of the 9,000 or so species of bird that are living today, about 5,000 are passerines (mainly tree-perching) and about 4,000 are non-passerines (mainly non tree-perching). Of the 5,000 passerines, about 4,000 are songbirds (oscines). One of the most musical songbirds in the UK, and the most commonly heard, is the European male blackbird. The male blackbird sings to defend its territory throughout the year. The bird will typically perch on a high branch or house-top within its territory and will sing for prolonged periods. An individual song may last only a few seconds but the bird may sing a whole series of songs over a period of five minutes or more. A blackbird typically has 22-48 different songs in its repertoire (Catchpole and Slater, 1995, p.165).

A typical song of a blackbird is shown in Figure 1 (Hinde, 1969, p.377). The song has many musical features including:

(i) Rhythm

There is rhythm because the song fits into a time signature of 3/8 i.e. there are three quavers in each bar. If the song consisted of random notes, then such a feature would not be present.

(ii) Melody

There is melody because the tune has a key signature which in this case is C. If the singing were purely random then one would expect a mixture of different key signatures. The song also contains notes mainly from the pentatonic scale (C, D, E, G, A). This helps to produce a pleasant melody.

(iii) Appropriate start and end

The melody starts on the key note (i.e. C). This is often used by composers to give the melody a starting point which sounds natural. The melody finishes on the fifth note of the scale which is one of the most significant notes in the scale.

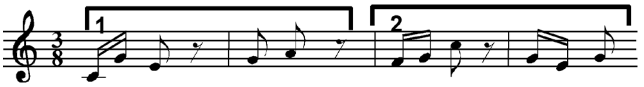

Figure 1. Song of blackbird.

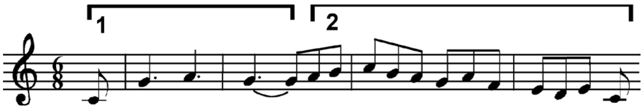

Figure 2. Melody by J.S. Bach.

(iv) Structure

There is a clear structure because there are two phrases as shown. The first phrase ends with anticipation because there is a rising interval of one note. The second phrase finishes with finality.

When the above musical features are considered together, they represent a high degree of musicality. Such musicality would only be expected from a composer who had studied music for many years. Yet birds have no music lessons!

To emphasize the musicality of the blackbird song of Figure 1, it is useful to compare the song of the blackbird with a melody from the music by J.S. Bach. Figure 2 shows a Bach melody (Hinde, 1969, p.377) which has remarkably similar features to the blackbird song shown in Figure 1. Like the song of the blackbird, the melody also has two phrases. Like the song of the blackbird, the first phrase ends with anticipation and the second phrase ends with finality. The pentatonic scale also features in the melody, as with the song of the blackbird.

According to evolution, the song of the blackbird gradually and randomly evolved because rival males found the beauty of the songs frightening. In particular, the theory of evolution proposes that musical features such as the pentatonic scale, intervals of anticipation and phrases are frightening. But no one can answer the question of why such beautiful features should be more frightening than plain sounds or ugly sounds. Even if one proposes that the song of the blackbird originally evolved in order to attract females, there is still the problem of explaining why the female was attracted to 'beautiful' music.

Matched countersinging

When two male blackbirds are in hearing range in neighbouring territories, they will often take it in turns to sing to each other. Each bird will typically sing for several seconds and then stop to allow the neighbouring bird to reply with a song. Having heard the first song, the neighbour will then sing his own song for several seconds and then wait for a reply. These exchanges of songs may go on for several minutes. A common feature of such song exchanges is that the blackbirds will deliberately sing a song which compliments the song of the neighbour. It may be that the birds choose to sing a song from their repertoire that is complimentary to the neighbour's song. However, it may also be that they spontaneously compose a 'variation on a theme', where the theme is provided by the neighbour's song.

Such singing is called matched countersinging because each song matches the other. It is interesting to note that some of the most beautiful music in operas involves matched countersinging between two singers. Such countersinging in man-made music requires great planning and design. Matched countersinging presents a particularly big problem for the evolutionist because many male birds seem to enjoy singing with neighbouring male birds. Catchpole and Slater (1995, p.177) say this about matched countersinging:

> "Another form of coordinated singing is the matching that often occurs between territorial neighbours. It is striking that when two such males sing against each other, they will often sing the same song type if both have it in their repertoires. Armstrong suggested that this was 'naming an opponent in song duels'…Bertram wrote of matched countersinging as involving 'flinging an insult back at the rival'. It may be, as this suggests, that hearing a song closely matching its own is a particularly effective deterrent for neighbours or other intruders."

This quotation illustrates the absurdity of evolutionary thinking. When two male birds take it in turns to sing to each other with matching songs, this produces a musical effect of the most profound beauty. The evolutionary idea that the beauty of matched countersinging is simply there because the birds want to 'fling insults at each other' is absurd! If two male birds are singing insults to each other then why should each bird patiently wait for the other to finish his song before replying? When two people are having an argument, it is usually the case that the participants interrupt each other and contradict each other. However, such behaviour is not seen in bird song. Matched countersinging provides wonderful evidence that bird song has been created for the sake of man.

The purpose of bird song

The beauty of bird song is so great that it must be concluded that the ultimate purpose of bird song is to bring pleasure to man and glory to the Creator. This conclusion is, of course, rejected by evolutionists. The evolutionist argues that since bird song is used to defend territory and attract females, this must mean that bird song has not been created for the pleasure of man. However, the fact that song performs communication roles for birds does not automatically mean that bird song exists only for the sake of birds. In fact, the complexity of bird song is so much greater than that required for communication that communication cannot be the only purpose of bird song. There are actually two very logical reasons why the Creator would give bird song a role in territorial defence and the courtship ritual:

1. A trigger for song

By giving birds a need to sing all through the year, this ensures that birds sing often for the enjoyment of man. If birds did not have to sing to communicate messages, then they might not sing at all. Therefore, the use of song in territorial defence and courtship is a clever way of ensuring that the beauty of bird song can be appreciated by man.

2. Conservation of beauty

Another advantage of song having communication roles is that it helps to conserve the beauty of bird song. If singing were not needed for any communication role, then it would be more likely that song could disappear due to gene mutations. For example, if a bird of a particular species stopped singing due to gene mutations, and there was no communication role for its singing, it could find itself at an advantage because it would be less conspicuous and would use less energy. This is an example of where 'loss' of information in the genetic code can be an advantage. However, since singing does have communication roles in birds, it is not an advantage for a bird to stop singing.

Territorial singing and courtship singing are so useful for triggering displays and conserving beauty that these communication roles actually add weight to the argument that bird song has been made for the pleasure of man. The evolutionary idea that bird song has not been made for the pleasure of man is totally without justification.

Common grace

The theologian Arthur Pink (1975, p.58) said this about bird song:

> "We might have walked the fields without our ears being saluted by the music of birds. Whence, then, this loveliness, this charm, so freely diffused over the face of nature? Verily, 'the tender mercies of the Lord are over all His works' (Psalm 145:9)."

Bird song can be a great encouragement because it reminds us how God has been gracious in putting profound beauty in the world for mankind to enjoy.

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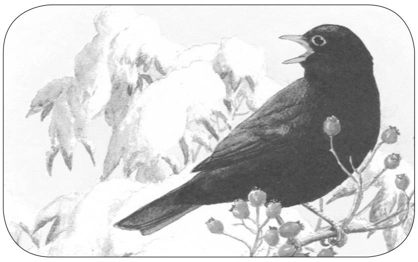

The blackbird singing.

© Philip Snow, WildArt/Creation, Beach Cottages, Malltraeth, Anglesey, North Wales LL62 5AT.

The immune system: designed to interact with microbes

Alan Gillen and Frank Sherwin

This article contains some technical terms. For definitions, please refer to the glossary at the end of the article.

Immunology is that branch of biology that involves studying how the body is designed to protect itself from agents of disease called pathogens. The word immune comes from the Latin root word that means *'freedom or protection from taxes or burdens'*. This amazing system battles disease in a manner that is so complex and intricate that the most gifted imagination could not envision such incredible functions. The primary role of our immune system is to recognize pathogens and destroy only them (Tortora *et al*, 2004). Methods of destruction range from antibodies destroying antigens (e.g. parasitic protozoans), interferon stopping viral replication, and ingestion of bacteria by macrophages through phagocytosis. In addition, the immune system is designed to prevent the proliferation of mutant cells, such as various cancers. But when this system malfunctions or when a boundary of our body is breached, it could result in localized or systemic (relating to the entire person) infections – or worse.

The 'bubble boy'

The vital functions of the immune system can be illustrated through the case study of a young man who lacked a functional immune system from birth (Gillen *et al*, 2001). In 1971, David Vetter was born with this tragic condition. He was the first long-term survivor of what biologists call severe combined immunodeficiency (SCID) syndrome. SCID is an autosomal recessive disease that leads to a failure of the B- and T-lymphocytes to develop properly. This in turn causes the failure of the immune system to function, much like the condition similar to AIDS. Faced with what was, at the time, a fatal condition, doctors placed David in a sterile environment on the third floor of the Texas Children's Hospital in Houston. He was first put into a small, sterile 'bubble' crib – and so dubbed the 'bubble boy' by the media. The doctors then determined what to do for a more extended time. After receiving generous donations, a unique, germ-free room was built. Later, an additional room was built along with an exclusive 'space suit' of transparent polyvinyl chloride film for David to walk in.

A second bubble room was constructed in the Vetter's home where David could spend time with his family. After twelve years of this required confinement, doctors cautiously hoped that with recent technology they could attempt a new and bold procedure. This involved David receiving specially treated bone marrow from his sister. Eighty days after the transplant and still in a germ-free environment, David developed some of the clinical signs of mononucleosis. Doctors removed him from isolation for more efficient treatment. They hoped his sister's marrow cells had by then established themselves and would protect David from the common microbes the rest of us encounter daily. Unfortunately, her cells had been infected with Epstein-Barr virus that produced a rare form of cancer in David. He died about four months after the transplant in February 1984. David's death provided a clear link between the Epstein-Barr virus and cancer. The immediate failure of the transplant did not kill him; rather, it was the proliferation of the Epstein-Barr virus that caused Burkitt's lymphoma. Without a working immune system, David was unable to defend against this normally low-risk virus. Besides David, thousands of other children have been born with this syndrome which is now routinely and effectively treated by bone marrow transplants. David's life was medically significant because he was the first long-term survivor, and in his death a great deal was learned about the immune system (Figure 1).

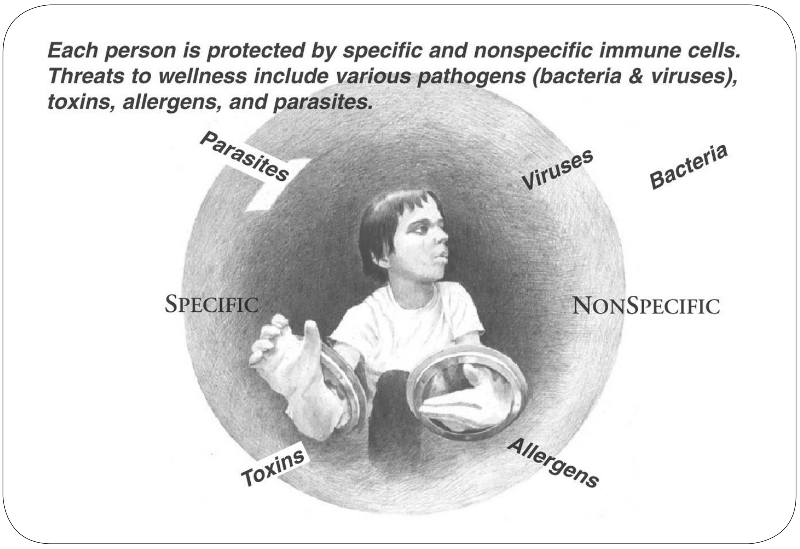
Each person is protected by specific and nonspecific immune cells. Threats to wellness include various pathogens (bacteria & viruses), toxins, allergens, and parasites.
Parasites
Viruses
Bacteria
SPECIFIC
NONSPECIFIC
Toxins
Allergens

Figure 1. Bubble illustration of immunity. Reproduced with permission from: Gillen, A.L. (2001). *Body By Design.* Master Books, Green Forest, AR, p.122.

The body's shield of defence

We learn from David Vetter's life that the immune system acts like a protective physical and biochemical bubble around the human body, protecting against every-day germs (Gillen, 2001). It provides an invisible barrier to nonspecific and specific pathogens. Diseases such as West Nile Virus, SARS, invasive 'flesh-eating' bacteria, HIV, bird flu, and malaria all threaten people in today's corrupted world. The immune system has been designed as the body's major defence not only against bacteria and viruses, but also fungi, parasites and toxins. It serves as an invisible boundary of mucous membranes, strong chemicals and proteins that defend us against new and old diseases. We might also think of it as an umbrella over us, protecting against the constant 'rain' of bacteria, fungi, parasites and toxins. Functional components of the immune system include various leucocytes (macrophages and neutrophils), interferons (a class of proteins), T-lymphocytes, B-lymphocytes and antibodies (Figure 2). These components are found in the blood and lymph, as well as in anatomical structures (Figure 3) including lymph glands, lymph nodes, spleen, bone marrow, tonsils and appendix, all of which are critical features (Martini, 2004). Prescott *et al* (2002) define the immune system as a system in a host consisting of the nonspecific and specific immune responses. This system is interwoven with a wide range of cells, tissues and organs that recognize, interact and respond with foreign substances.

Designed to interact with microbes

According to Genesis 1, in the beginning all creation was declared good or very good. One may infer from this that there were no pathogens and parasites before the Edenic Curse in Genesis 3. So, did the Creator make the immune system after the Fall of man and the Curse were implemented? Scripture teaches that God completed His creation at one specific time and is not engaged in a continuous creation. The immune system was most likely included in man's original design. There is growing evidence to suggest that the immune system would be useful to the body even in a perfect world. Did God create the immune system knowing that we would need it to battle pathogens after the Fall? Was it inevitable that we would encounter germs? These are questions that creation scientists have pondered for some time.

The first creation biologist to formally conduct research on the immune system from a biblical perspective was Dr Joseph Francis (Francis, 2003). He suggests that rather than thinking about the immune system as we know it today – as a body defence system against microbes – think of it rather as a *sensory system* designed to interact with beneficial bacteria and the environment. Francis describes bacteria and viruses as the 'organosubstrate of life' or biomatrix. In this view, bacteria and viruses are seen not so much as distinct organisms but more as 'extra-organismal organs', that is, the means by which 'higher' organisms meet their needs, and the entire ecosystem is supported by this elaborate maintenance and repair substrate. In this biomatrix model, Francis sees the tiny proportion of disease-causing bacteria and viruses being due to degenerate mutations that adversely affect the original mutualistic functions with which they have been designed.

It certainly appears from creation research, that the immune system is interwoven with symbionts (members of a protracted and intimate association). The immune system serves to sense our environment and allow us to interact with microbes in a way that provides benefits – such as nutrients – for us. The creation worldview predicts that all living organisms were originally good and the human body likely had a symbiotic relationship with microbes. A remnant of the pre-Fall environment, which was free of parasitism and disease, suggests that the immune system was originally designed to interact positively with microbes. After corruption following the Curse, the immune system's interaction with microbes changed to screening for dangerous pathogens and toxins, and thereby became a defensive body system. Today, our immune system is dealing with the corrupted and cursed world around us. Indeed, parts of the immune system, like the other body systems, are no longer perfect. However, we can observe remnants of the original design. There are many examples of beneficial bacteria and other microbes living mutualistically with our body, including components of the immune system.

Evidence of cooperation and interaction

In order to appreciate this non-Darwinian perspective, we should understand the microbial concept – that most bacteria are beneficial to us and/or the

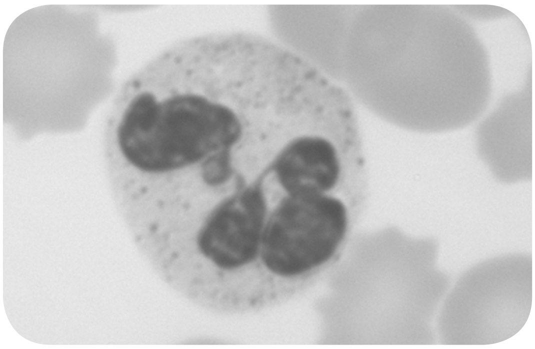

Figure 2. Neutrophil – functional component of the immune system. Photograph © David DeWitt.

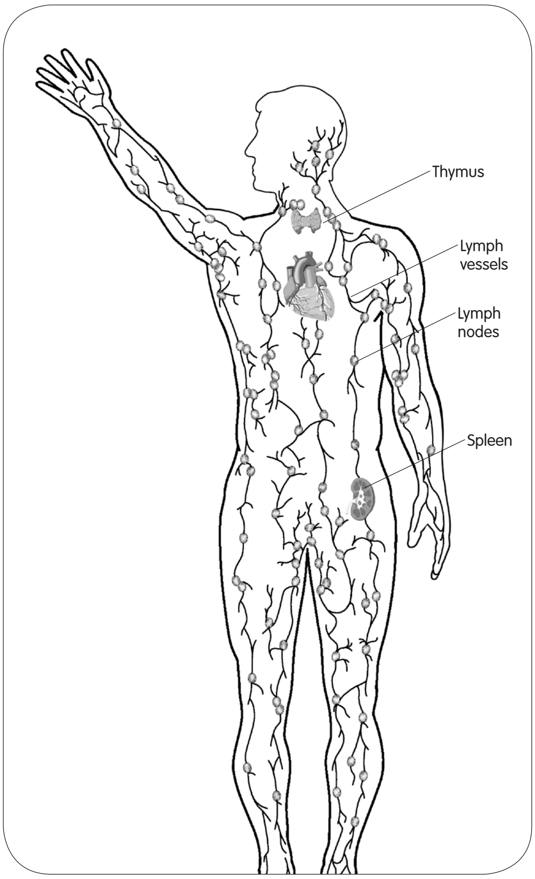

Figure 3. Lymphatic organs – anatomical components of the immune system. Reproduced with permission from: Gillen, A.L. (2001). *Body By Design.* Master Books, Green Forest, AR, p.119.

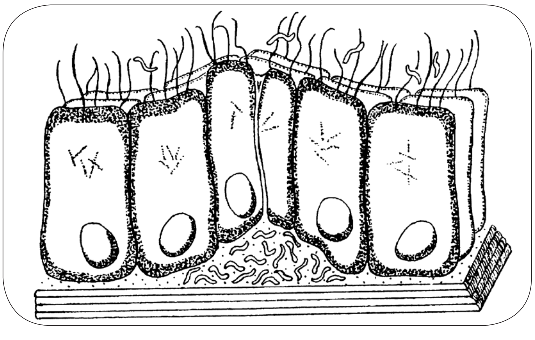

Figure 4. Most of the time, bacteria inhabit the gastrointestinal tract mutualistically – but the establishment of an infection may occur when host tissues are invaded and boundaries are broken. Reproduced with permission from: Gillen, A.L., Sherwin, F.J., Knowles, A.C. (1999). *The Human Body: An Intelligent Design.* Creation Research Society Books, St Joseph, MO, p.98.

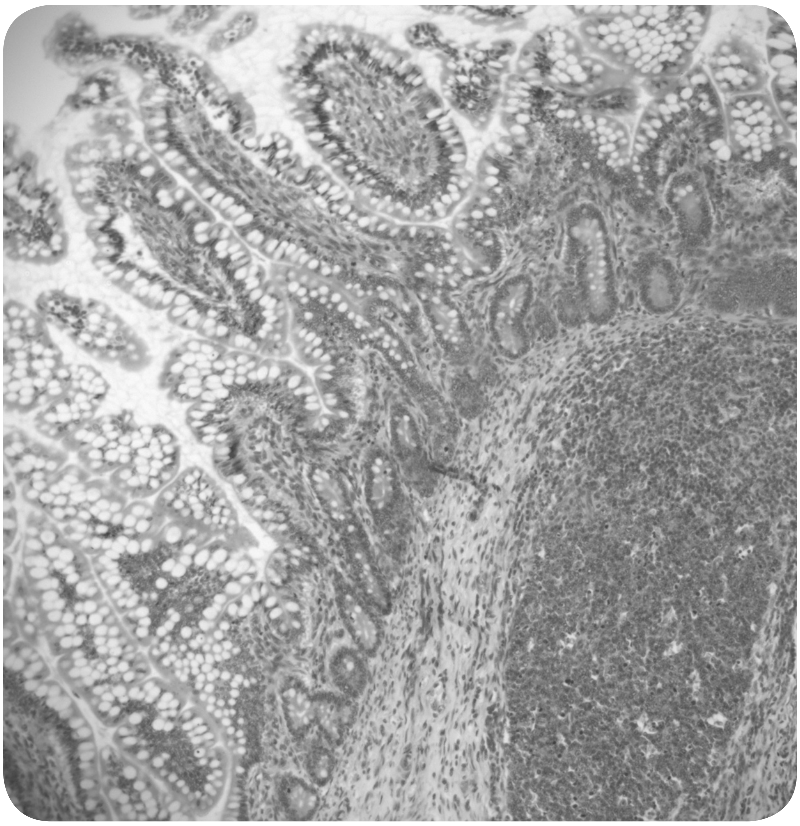

Figure 5. Peyer's patches – aggregated lymphatic follicles. Photograph © David DeWitt.

environment. The news media glorifies devastating pathogen-induced diseases, even though over 95% of all bacteria are not classified as causing diseases (Dixon, 1976). Most do not harm us. Likewise, a vast majority of protozoans are mostly free-living or mutualistic. There are more *Escherichia coli* in our intestine than there are people on the earth. Without large mutualistic populations of beneficial bacteria in our gut, we would be unable to digest materials and absorb compounds properly. Occasionally, we read or hear about *E. coli* outbreaks that have caused serious illness, and yet of the approximately 170 strains that exist, less than a dozen are actually classified as being pathogenic; the other 150 plus strains are beneficial to us. In fact, most of them do beneficial things; for instance the production of B-vitamins. The B-complex of niacin, riboflavin, and vitamin K, all come from *E. coli*. In addition, some intestinal bacteria can break down macronutrients, and assimilate the resulting micronutrients into the body (Gorbach, 1990).

Beneficial bacteria even help in the normal development of our gut (Figure 4). Studies using germ-free animals have shown that if they are raised without bacteria and other microorganisms, including protozoans normally found in the intestines, the creatures do not develop normally (Dixon, 1976). In one study, researchers were able to eliminate bacteria from mouse intestines at a very young age. Their intestines did not develop properly and, as a result, these 'germ-free' mice experienced atypical growth. It was found that the circulatory system did not perfuse the intestines properly. This strongly suggests that bacteria may guide development of the gastrointestinal tract of animals and people. Perhaps the immune system operates by protecting some of the bacteria in a symbiotic fashion. The immune system may very well be keeping out the deleterious microorganisms that compete with these beneficial bacteria. The surface of your skin is populated with salt-tolerant bacteria

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> 'According to Genesis 1, in the beginning all creation was declared good or very good.'

inhabiting a specific niche. If this streptococcal population was eliminated through, for example, a high antibiotic regimen, this niche would be vacated and fungal spores would immediately populate the skin and cause a troublesome fungal infection. There are several other examples of the important, beneficial work of many bacteria and protozoans.

In more recent studies (Harder, 2004), we see how consumption of yogurt bacteria *(Lactobacillus bulgaricus)* helps to reduce some forms of *arthritis*. In *rheumatoid arthritis*, the immune system is hyperactive (autoimmune). In experimental studies of rats that consume yogurt with both *L. bulgaricus* and *L. rhamnosus* strain GG (LGG), marked improvement of joint movement (in rats with arthritis) was noticed. The infusion of new bacteria into the gut 'distract' the immune system from attacking the joints (although not permanently), and the previous overreaction of the immune system is balanced with the effects of mutualistic bacteria. The bacteria occupy a niche that is located in the microhabitat of Peyer's patches. Peyer's patches are aggregated lymphatic follicles in the small intestine (Figure 5). This series of small lymphatic nodules interwoven with the intestines serves an immune function associated with digestive processes. The positive interaction with cells of the immune system keeps them occupied with their purposeful function. It also stops the arthritis, and joints articulate properly. The observations show that beneficial lactobacilli in the body, interacting with the immune system, provide the right balance for the skeletal system (i.e. joints) to work in harmony with their original design.

Designed for rapid diversification

In addition, viruses may be remnants of 'mobile' genes that were designed to interact with us under certain conditions. Viruses can go right into our cells and modify the DNA. For instance, as people go into a new environment, they need to adapt to it rapidly. Viruses may have started a mechanism for genetic change. And the immune system was a way to deliver modification through these mobile genes. The immune system would have also had the ability to identify the correct virus in its recognition system. But, after Adam's sin in the Garden of Eden, everything changed, including the mobile genes becoming viruses (Latin for 'poison') within us. It is possible that viruses modulate organisms at the genome level but have the potential to promote non-genetic-based phenotype changes. At the tissue level, viruses display an ability to remodel tissues by promoting apoptosis (programmed cell death) influencing the manner in which cells interact with one another. Perhaps viruses may have been created as mobile extrachromosomal agents of gene or cell regulation. After the Curse, these structures began to harm us. Due to their subsequent corruption, the body had to begin now to defend against viruses. The mobile genes once designed to interact within us in a helpful matter, now have to be kept separate (at 'arms length'). The immune system was not newly invented after the Curse, but rather it had to take on a new role. At that time, the original genetics of the immune system had this built-in variability. It was there for purpose and function even prior to the Fall, but then after the Fall it also had to have the ability to put up a shield against those same organisms.

One specific example of this corruption may be seen in how the immune system interacts with retrotransposons, genes similar to the retrovirus, HIV. Recently, molecular biologists found that on human chromosome 22, human endogenous retrovirus (a retrotransposon) turns off the immune system during pregnancy (Francis, 2003). This design prohibits the mother's immune system from damaging the child's body. These retroviruses are not fully competent to replicate, but instead can only infect local immune cells (such as macrophages) of the uterus, thereby preventing them from initiating an immune response. Thus, the mother's immune system will remain competent to respond to other infections but is specifically prevented from mounting an immune response to the embryo. Only the presence of the embryo itself prevents an immune reaction. In the original creation, this selective ability to turn off the immune system would have been a 'good' design to protect the unborn. However, since the Curse and decay of creation, corrupted retroviruses, such as HIV and various leukaemia viruses, turn off the entire immune system, leaving the body prone to various infections.

Conclusion

Evolution declares that life evolved very slowly over millions of years, and the immune system supposedly emerged as a result of a struggle to survive and successfully compete with pathogens and toxins in the world. However, we know from Scripture and science that God created everything in six days and our immune system is no exception to that truth. The nature of the immune system is such that it must be fully formed and functional ready to engage with microbes and it does not make any biological sense to have a slowly and gradually evolving immune system. Either it works or it does not work. Either the white blood cells are successful in engulfing all the pathogens or they are not. And if they are not, then the organism dies. So we have to have an immune system that is fully formed and functionally complete from the start. The evolutionary idea that the immune system as a complex has evolved over the alleged millions of years, simply has no scientific basis or logic. The immune system from the beginning was made with purpose and a good design, even in a perfect world. Although creation would change with subsequent curse and corruption, the immune system changed with it for our good. It became our God-given defence and shield in a decaying and dying world.

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Glossary

ANTIBODY – a protein produced by the cell as a result of the presence of an antigen. Antibodies combine with antigens and thereby render them harmless to the organism which they are invading.

ANTIGEN – a protein or carbohydrate which is foreign to an organism and which is able to stimulate the formation of antibodies.

APOPTOSIS – a form of cell death in which a programmed sequence of events leads to the elimination of cells without releasing harmful substances into the surrounding area. Apoptosis plays a crucial role in developing and maintaining health by eliminating old cells, unnecessary cells, and unhealthy cells.

AUTOSOMAL RECESSIVE DISEASE – a genetic condition that appears only in individuals who have received two copies of a mutated autosomal gene, one copy from each parent. The gene is on an autosome, a nonsex chromosome. Examples of autosomal recessive disorders include cystic fibrosis, phenylketonuria, and sickle cell disease.

B-LYMPHOCYTE – specialized leucocytes processed in the bone marrow; these cells give rise to plasma cells that produce antibodies.

BACTERIA – single-celled microorganisms which can exist either as independent (free-living) organisms or as parasites (dependent upon another organism for life).

BLOOD – the fluid in the body that contains red blood cells (erythrocytes) and white blood cells (leucocytes) as well as platelets, proteins, plasma and other elements. It is transported throughout the body by the circulatory system.

BURKITT'S LYMPHOMA – a type of non-Hodgkin lymphoma (NHL) that most often occurs in young people between the ages of 12 and 30.

E. COLI, ESCHERICHIA COLI – an enteric bacterial species used in many biological research projects which inhabits the intestines of humans and other animals. Proliferation can cause newborn meningitis, diarrhea, and urinary infections.

EXTRACHROMOSOMAL – outside of a chromosome.

GENOME – the total DNA for a given organism.

HOST – the organism from which a parasite obtains its nutrition and/or shelter. Also refers to the organism in which a virus can replicate itself.

IMMUNODEFICIENCY – an impairment of immunological function which leads to greater susceptibility to opportunistic infections (e.g. SCIDS and AIDS).

INTERFERON – a protein which is produced in many animal cells as the result of the presence of viruses (either active or inactive) in the cell. Interferons act as a form of protection against these viruses.

LEUCOCYTES – the main type of white blood cells.

LYMPH – a clear, plasma-like fluid that flows through lymphatic vessels.

MACROPHAGE – cell found in many tissues including blood that ingests (takes in) foreign material. Macrophages are key players in the immune response to foreign invaders such as infectious microorganisms.

MONONUCLEOSIS – a contagious viral illness caused by the Epstein Barr virus that initially attacks the lymph nodes in the neck and throat.

MUTUALISM – an interaction between members of two species which benefits both.

NEUTROPHIL – a type of white blood cell filled with tiny sacs of enzymes that help the cell to kill and digest microorganisms it has engulfed by phagocytosis.

PARASITE – an organism of one species that lives at the expense of an organism of another species. The parasite usually lives inside or on the surface of its host species and often obtains its nutrients from the body tissues or gut contents of its host.

PATHOGEN – technical term for germ, or germ-causing microbe, such as virus, bacterium, or protozoan that may be disease-causing.

PERFUSE – to permeate with liquid, such as blood.

PEYER'S PATCHES – oval patches of lymph tissue on the mucous membrane of the small intestine.

PHAGOCYTOSIS – the process of engulfing other organisms; an example of this is macrophages eating bacteria and other invaders of the body.

PHENOTYPE – the actual physical constitution of an organism.

PROTOZOAN – a single-celled animal with a nucleus; examples are amoebae, ciliates, and flagellates.

RETROTRANSPOSON – a class of genetic elements that includes retroviruses and transposons that have an intermediate RNA stage. These elements are mobile within the genome, hence their name which means 're-inserted'.

RETROVIRUS – an RNA virus (a virus composed not of DNA but of RNA). Retroviruses have an enzyme called reverse transcriptase that gives them the unique property of transcribing RNA (their RNA) into DNA. The retroviral DNA can then integrate into the chromosomal DNA of the host cell to be expressed there. The human immunodeficiency virus (HIV), the cause of AIDS, is a retrovirus.

SYMBIONT – either of two organisms living in a symbiotic relationship (i.e. a relationship between two organisms which is mutually beneficial).

T-LYMPHOCYTE – specialized leucocytes processed in the thymus gland; these lymphocytes provide the body with specific cell-mediated immunity.

TOXIN – a poison; often used to refer to a poisonous substance produced by certain bacteria.

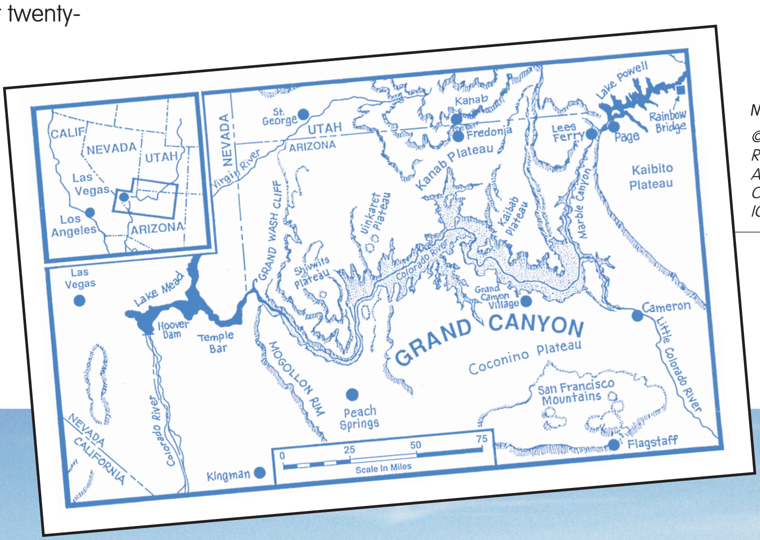
VIRUS – a disease-producing particle consisting of a coat of protein molecules surrounding a DNA or RNA genome. Viruses can only reproduce inside other cells which they parasitize.

> “
>
> 'The immune system would have also had the ability to identify the correct virus in its recognition system. But, after Adam's sin in the Garden of Eden, everything changed.'

The Grand Canyon Adventure – Part One

Paul Garner

The Grand Canyon of Arizona is an awe-inspiring spectacle drawing millions of visitors every year. Some are content to enjoy the panoramic views from the observation points on the rim, while others hike the trails down into the canyon. Relatively few get to see this geological wonder 'up close and personal' by white-water rafting the Colorado River through the canyon. However, it was my privilege to do just that when I took part in a tour organized by the Institute for Creation Research (ICR) in May 2004. ICR has been leading tours to Grand Canyon since 1980 and this was their twenty-fifth trip. We were particularly interested in studying the geology of Grand Canyon from a creation-flood perspective. For five days and nights we journeyed down-river and camped in the canyon. ICR promised us the experience of a lifetime – and so it turned out to be! So join me my journey – this is the diary of my Grand Canyon Adventure!



Map of Grand Canyon.

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Paul Garner on the south rim of Grand Canyon

Friday 30th April

Arrived at Phoenix Sky Harbor Airport and caught a taxi to the Wyndham Airport Hotel. Found my way to the Registration desk where I was greeted by Andrew Snelling, one of the ICR geologists leading the tour. Then to my room for a good night's sleep – it had been a long journey and we had quite a week ahead of us!

ICR geologists (from l to r): Andrew Snelling, Steve Austin and Bill Hoesch.

Saturday 1st May

Loaded luggage onto the buses and assembled in the hotel for orientation. Welcome by John Morris, ICR President, and overview of Grand Canyon geology by Steven Austin, using a pnemonic based on his own name:

Strata
Tectonics
Erosion
Volcanoes
Exponential decline

Other short talks on radioisotope dating of Grand Canyon rocks (Andrew Snelling), geology of northern Arizona and southern Utah (Bill Hoesch), fossil nautiloids of Grand Canyon (Steve Austin), animals and plants of Grand Canyon (Frank Sherwin), and the Anasazi Indians (Larry Vardiman). We were also given a weather forecast and practical tour information. Importance of punctuality emphasized – there is a forfeit if we don't keep to time. If we arrive late at the bus we 'wear' a cardboard clock around our necks until next stop!

There are three tours running simultaneously – a bus tour, a hiking tour, and a raft tour. I'm on the latter. We'll be together for Saturday and Sunday, then we go our separate ways, but we'll meet up again for a 'Victory Dinner' at the end of the tour. Steve Austin and Andrew Snelling will accompany the rafters.

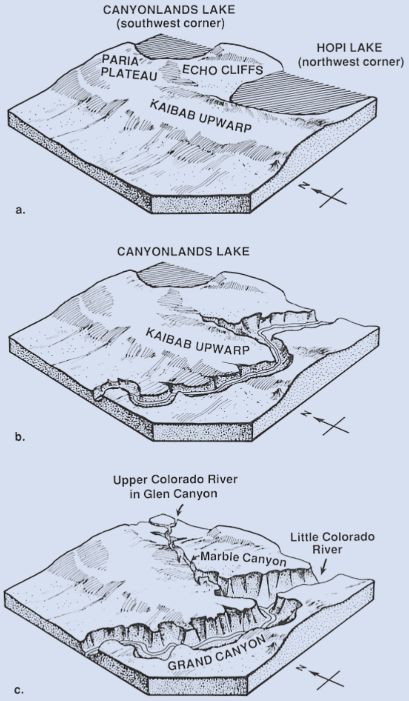
After lunch, we board buses and set off for south rim of Grand Canyon. We stop for a snack at Flagstaff, where snow-capped peaks of San Francisco Mountains – large complex of volcanoes – can be seen on horizon. Next stop is Grand Canyon Village, where we visit IMAX Theatre to see spectacular film about history and exploration of Grand Canyon. Dramatic footage of Colorado River rapids makes some of us wonder what we've let ourselves in for! Actual wooden boats used by John Wesley Powell's expedition (1869) on display behind theatre building.

Arrive at Mather Point – observation site on south rim – as sun is setting. My first view of Grand Canyon! It's every bit as spectacular as you might imagine (see inset box 1). As light fades, we depart for Yavapai Lodge East to settle into rooms and have dinner.

INSET BOX 1: GRAND CANYON OF ARIZONA

Grand Canyon extends for 277 miles through northern Arizona, attaining a depth of more than a mile and ranging from 4 to 18 miles wide. The altitude of the south rim is 7,500 feet above sea level, slightly lower than the north rim which is at 8,500 feet elevation above sea level. The Colorado River runs its course at about 2,500 feet above sea level. Within the canyon there are hundreds of side canyons and many pinnacles and spires that tower above the river. The rock layers are exposed magnificently to view because of the lack of vegetation, allowing the sunlight to pick out the varied colours and hues.

Most people suppose that Grand Canyon was carved by slow and gradual river erosion over millions of years. However, some geologists now suspect that the canyon was established by the catastrophic drainage of a lake or series of lakes to the east. This has been called the breached dam theory. Evidence of ancient lakes has been found in eastern Arizona in the form of lake sediments with freshwater fossils. There are also documented examples of canyon systems forming by catastrophic processes, though on a much smaller scale, in the present day. For example, on 19th March 1982, a catastrophic mudflow cut a canyon system up to 140 feet deepjust north of Mount St Helens.



Breached dam theory for catastrophic, post-Flood erosion of Grand Canyon.

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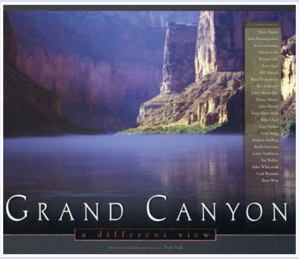
Grand Canyon at sunset from Mather Point.

Sunday 2nd May

After breakfast we join Grand Canyon Baptist Church for morning worship – ‘guest’ preacher is Dr Henry Morris III. After the service we journey short distance to Desert View Tower for ‘mini-lectures’ on the rim by ICR staff. Canyon is a fantastic backdrop – difficult to imagine a more beautiful place to listen to talks.

Back to buses for lunch at Cameron Trading Post. Prize offered for eating a whole Navajo Taco – but most of us settle for half-size portion! From Cameron, the rafting group head to Page where we will enjoy one last night of comfort before voyage down the river! We drop baggage at hotel, then go for dinner in Rainbow Room at Wahweap Marina – a glass-walled restaurant offering spectacular views over Wahweap Bay in Lake Powell. Lake Powell is at eastern end of Grand Canyon not far from the Glen Canyon Dam – 186-miles long with lots of water sport activity and houseboating.

Paul Garner at Lees Ferry.



Tom Vail’s book

INSET BOX 2: CONTROVERSY OVER CREATIONIST GRAND CANYON BOOK

The availability of Tom Vail’s book in Park Service shops has provoked a storm of protest from anti-creationists. In December 2003, the presidents of seven geological societies wrote a letter to the superintendent of Grand Canyon National Park demanding that the book be withdrawn from sale.

In their letter the geologists claimed that, by selling the book, the National Park Service is giving the impression that it approves of “the anti-science movement known as young Earth creationism.” Of course, the book is not anti-science – the contributors include many PhD scientists, including several who have published original research on Grand Canyon geology.

A lobby group called Public Employees for Environmental Responsibility (PEER) also weighed into the controversy. Their executive director, Jeff Ruch, said, “The Park Service leadership now caters exclusively to conservative Christian fundamentalist groups.” He added, “The Bush Administration appears to be sponsoring a program of Faith-Based Parks.”

The letter from the geological societies urged that, if the book remains available in Grand Canyon bookstores, “it be clearly separated from books and materials that do discuss our scientific understanding of Grand Canyon geology.” In May 2004, the book appeared to have been placed separately from the other books in the Park Service shop at Yavapai – but this just made it more noticeable!

By sunset, we're tired – and have early start ahead of us. Must be up for breakfast at 5.00 am – although we almost don't make it to bed when lift gets stuck between floors at hotel! Perhaps we've eaten too much at the Rainbow Room?

Monday 3rd May

Breakfast at nearby restaurant – we're up too early for the hotel! Suitcase is loaded on bus for storage at Flagstaff – we now have only the kit needed for river trip.

Bus takes us to Marble Canyon Lodge where we meet river crew – ICR use Arizona River Runners. Our chief boatman is Tom Vail, who has led more than 150 canyon tours over the past 25 years, and he is ably assisted by Trey Cavolo, John Kelly, and Mark Piller. Tom is the author and compiler of *Grand Canyon: A Different View* – a creationist book which has stirred up enormous controversy (see inset box 2).

Tom gives pep talk about the rules of the trip – safety is paramount. The canyon is a potentially dangerous place so adhering to the rules is vital. Tom encourages us to remove wristwatches. We are now to operate on 'river time': "breakfast at 8.00, lunch at 12.00, dinner at 7.00 – whatever the time is!").

Bus takes us to Lees Ferry where the rafts will launch. Each of us is provided with three waterproof duffel bags. First holds our sleeping kit, second our clothes and toiletries, and third the few items we need during the day (suncream, camera, hat). Only latter is available while on raft – others are stowed under tarpaulins in centre of raft and retrieved when we make camp.

There are two 'S-rig' rafts – about 15 people on each. In bottom of each raft is storage for food and equipment, duffel bags are stowed under tarpaulins in middle, and passengers seated around outside. You can stand up and move around – except when going through rapids. Then you sit down and hold on tightly! Sitting near front of raft is okay so long as you don't mind getting very wet!

We load rafts and leave Lees Ferry in excited anticipation.

Begin journey through Marble Canyon. In the walls of the canyon we cut down through the geological sequence – Kaibab Limestone, Toroweap Limestone, Coconino Sandstone, Hermit Shale, Supai Group (see inset box 3).

First stop is for ICR geologists to collect sample of Hermit Shale – will be analysed for pollen and plant spores. Grand Canyon rocks can only be collected for legitimate scientific research with a permit from the National Park Authority.

Next stop – for lunch – is near Badger Creek Rapid. River guides get rid of snake sunning itself where kitchen will be and prepare food. As we soon find out, the food on the trip is great. We're catered for very well. We also find that hygiene is a priority – all the plates and utensils are washed thoroughly before and after each meal. We're a long way from help if anyone becomes ill.

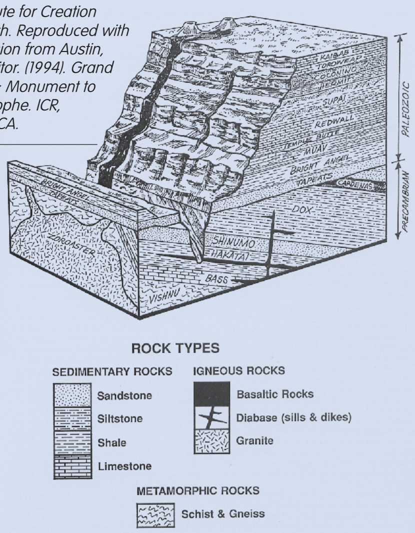
After lunch we head off with Nautiloid Canyon our destination. However, we don't make it that far down river so first night is spent at Shinumo Wash surrounded by towering cliffs of Redwall Limestone. Camp routine is established. When we leave the rafts, each of us finds a sleeping spot and marks it with our lifejacket. Then we join the 'fire-line' to unload the boats. Afterwards we organize our sleeping area. Tents are available – and some ladies choose to

Tom Vail.

INSET BOX 3: GRAND CANYON GEOLOGY

Grand Canyon exposes a thick sequence of layered sediments, sitting on top of an eroded basement of older sedimentary rocks, igneous rocks (granites) and metamorphic rocks (schists). In this sequence the harder layers (e.g. sandstone, limestone) form vertical cliffs; the softer layers (e.g. shale) form slopes.

About 6,000 feet of younger sediments were deposited on top of the Grand Canyon succession – but they have been eroded away from the canyon rim. However, as you travel north from Grand Canyon into southern Utah, the younger layers can be found exposed in a series of 'steps' which has become known as the Grand Staircase.



Geological block diagram showing rock structure and topographic form below the north rim of Grand Canyon.

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use them – but most of us fall asleep under the stars. What about the 'facilities'? We have a chemical toilet hidden among rocks or bushes – with a great river view! You wash in the river.

Sleeping kit consists of tarpaulin, foam mattress, sleeping bag, sheet (too hot to use it!), and small inflatable 'pillow'. Did I sleep well? Mostly – though sometimes a little fitfully.

Tuesday 4th May

Morning alarm call is a loud shout from Tom – "Coffee!" Then a few minutes later – "Breakfast!" I remember to shake my boots and drying clothes for scorpions! After breakfast and morning devotions we load rafts and set off down river. Spectacular limestone and dolomite interbedding in the Redwall Limestone! We pass Stanton's cave, named after Robert B. Stanton, leader of a railroad survey, who ended his first trip into the canyon here – at South Canyon – in 1889. We also marvel at Vasey's Paradise – a little oasis where water is bursting from the rocks. The walls are covered with mosses, ferns, and flowering plants. In 1869, John Wesley Powell came across this site and named it after a botanist who had travelled with him the previous year.

We pull up at Redwall Cavern to look at fossils in Redwall Limestone. From a distance, the cavern looks like small notch in base of cliff – but appearances are deceptive. It is an immense cavern carved by the river when in flood. John Wesley Powell thought it would seat 50,000 people – something of an exaggeration – but it is very big!

Stanton's Cave

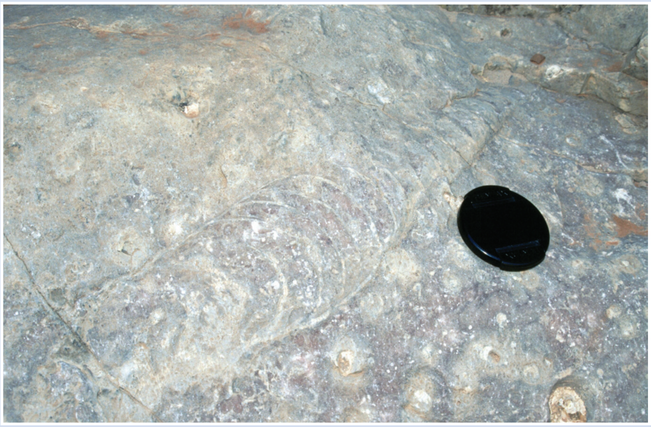
INSET BOX 4: FOSSIL NAUTILOIDS OF THE REDWALL LIMESTONE

Fossil nautiloids were first discovered in Grand Canyon in 1966. In 1995, creation geologists Steve Austin and Kurt Wise documented 71 nautiloids in Nautiloid Canyon and began to consider the possibility of a mass-kill event. In March 1999, Steve Austin examined other ledges along the river and within a few days discovered *hundreds* of nautiloids. It became apparent that the nautiloid layer runs the entire length of Grand Canyon.

On average this bed contains one nautiloid per square metre. There are easily one billion nautiloids in the layer – possibly as many as ten billion. The nautiloid shells come in a range of sizes – small, medium, to large. This means that the fossil nautiloids represent an entire population that was buried in a single event. Curiously, the nautiloid fossils are concentrated in the middle of the two-metre-thick bed – not at the bottom. About 15% of them stand vertically within the bed.

Measurements of the orientation of the shells suggest that the deposit was not produced by the random fall of dead nautiloids onto a motionless and static ocean floor. Rather, the shells appear to have been deposited by a strong current moving towards the southwest.

Steve Austin has come to the conclusion that this layer was deposited by a gigantic, high-speed sedimentary flow moving through northern Arizona. Billions of nautiloids were caught up in this flow, which was deposited in minutes. Apart from the nautiloids, this bed is typical of the rest of the Redwall Limestone. Were Grand Canyon limestones really laid down over millions of years in calm and placid seas?



One of the fossil nautiloids at Square Hole Ledge

Steve Austin interview

Inside Redwall Cavern.

We set off again – but soon reach our next stop at Square Hole Ledge. I've been looking forward to this – a chance to see the famous nautiloid bed. We 'get our eye in' and soon we see fossil nautiloids everywhere! Large, cigar-shaped, chambered shells that housed a squid-like creature. How did so many come to be fossilized together like this? Steve Austin tells us the fascinating detective story (see inset box 4).

We have a film crew with us making two documentaries for ICR – one about the fossil nautiloids and the other about radioisotope dating of Grand Canyon rocks. They film Steve and Andrew speaking about the nautiloid bed and the evidence it offers for catastrophism.

Next stop is Nautiloid Canyon itself – where these extraordinary fossils were first discovered. It's a small side canyon about 100 yards off the river. After lunch we ascend into the canyon to see the nautiloids exposed in the limestone pavement beneath our feet. More filming for the documentaries.

Rest of day spent on the river. Beneath the Redwall Limestone we see ancient channels carved into the Muav Limestone and filled in with the Temple Butte Limestone. The physical evidence of erosion means that there is some time missing here – but how much? Two entire geological systems – the Ordovician and Silurian – are missing. If conventional dating is right, that's a time gap of 100 million years. But the channels are only 30 feet deep – surely there should be more evidence of those 100 million years?

We make camp at Saddle Canyon. Great 'bedroom' – with lovely river views! Devotions are good tonight. Tom has a stirring testimony. We listen as darkness falls.

(End of part one – the second part will appear in our next issue)

Camping at Saddle Canyon.

Demolishing a straw ark: The BBC's *Noah's Ark* fiasco

Paul Garner

On Sunday 21st March 2004, the BBC aired Jeremy Bowen's latest foray into biblical archaeology. Having previously examined the life of Christ and the exodus from Egypt, his subject on this occasion was the Genesis account of Noah and the Flood. Describing it as "one of the great myths of human history", he set about deconstructing the story. Bowen identified three main 'problems' with the biblical account:

1. It would have been impossible to build a wooden boat as large as the ark;
2. Noah could not have collected and accommodated two of every species on the ark;
3. There is not enough water on Earth for a global inundation.

Sceptics have been raising these objections for centuries and Bowen has brought them to a mass audience. Let us examine each of the claims.

Just too big?

Consider first the alleged 'impossibility' of building a wooden boat as large as the ark. According to the Bible, the ark was 300 cubits long, 50 cubits wide and 30 cubits high. Assuming that the cubit is 1.5 feet long, the biblical measurements translate to 450 feet long, 75 feet wide, and 45 feet high. Misleadingly, Bowen said this was "almost as big as the *Titanic*". Actually, the ark was about half as long and twice as wide as *Titanic*. Nevertheless, Bowen claimed that even the Victorians – with their engineering prowess – could not have built a boat this large from wood. A marine archaeologist, Tom Vosmer, stated that constructing the ark would have been impossible without "iron reinforcements". The ark could not have maintained its shape – it would have distorted and opened up along the seams. To make the point, special effects were employed to show the ark collapsing and sinking.

In fact, ancient shipbuilding techniques were not nearly so 'primitive' as the programme seemed to suggest. The Bible tells us that pre-Flood civilisation was quite advanced and possessed metal-working skills (Genesis 4:19-22) – although much of this technology was lost after the Flood and had to be 're-discovered'. There is evidence that some pre-modern ships approached the length of the ark. Athenaeus gives a detailed description of a warship built by Ptolemy Philopator (c.244-205 BC) which was 420 feet long, 57 feet wide, and 72 feet high to the top of her gunwale. The size of this ship approximates that of Noah's ark (Pierce, 2000).

Bending could have been prevented by constructing the lower deck of the ark out of logs, four layers deep, instead of planks. The identity of the wood used is uncertain. But if, as some commentators have suggested, *gopher* is not a type of tree but a process of hardening the wood, then problems with sagging are even less likely. Finally, leaks in wooden vessels are not inevitable – they are usually the result of poor construction methods.

Not enough room?

Next Bowen claimed that Noah could not have collected and accommodated the animals as described in the Bible. According to the programme, thirty million species must have been represented on the ark – and there simply wasn't room. A whole fleet of arks would have been required! Viewers were told that Noah had only seven days to find all these animals and usher them onto the boat – necessitating a loading rate of 50 pairs every second! There was even a melodramatic reconstruction of Noah arguing with his family about this problem, accompanied by comical music. Presumably the intention was to leave viewers in no doubt as to the absurdity of the Genesis account. In fact, it was the programme makers who were piling absurdity upon absurdity.

It is not clear how the number of 30 million species was arrived at – but that doesn't really matter because the number is a 'red herring' in any case. The Bible does not claim that every species was represented – only every *kind*. A great deal of work has demonstrated that the biblical kind is much broader than the species – it probably approximates to the taxonomic rank of 'family'. Furthermore, only the land mammals, birds and land reptiles were to be taken on board. So a more realistic estimate of the number of animals on the ark is 2,000 (Jones, 1973). Bowen's claim that Noah had only seven days to find the animals and load them on the ark appears to be based on a misreading of Genesis. There is nothing in the account that necessitates such a constraint. Noah may have had years to collect the animals or for the Lord to bring them to him. When it comes to boarding the ark, only a few hours would be required for 2,000 animals even assuming single-file entry!

Not enough water?

Was there enough water on Earth for a global inundation? For geological advice, Bowen turned to Professor Ian Plimer, author of a notorious book called *Telling Lies for God* (1994). Plimer has made something of a career out of baiting Christians, though his antics have proved an embarrassment even to some of his fellow sceptics. He informed viewers that there is "no evidence" for a global flood – rather there is "overwhelming evidence to the contrary". In particular, he claimed that more than three times as much water as currently exists on Earth would be required to cover Mount Everest. This 'difficulty' ignores the fact that the Flood was a cataclysmic event that changed the entire topography of the world. Mount Everest and the Himalayan mountain chain did not exist at the time of Noah's Flood. Dramatic changes would have been produced by the biblical Flood and its aftermath, including tectonic movement and mountain building. When we take this into account, there is every reason to believe that there was enough water to cover the entire Earth (even to a depth of a kilometre or more).

Bowen's Sumerian 'Noah'

After erecting a 'straw man' version of the biblical account and then knocking it down, Bowen set about constructing a 'more credible' version of the story. He adopted the view of many modern scholars that the biblical account was based on earlier legends of a large Mesopotamian flood. Bowen's 'Noah' was a Sumerian king who had built his ark to transport goods along the River Euphrates. He was unfortunate enough to get caught in a tropical storm that washed him out into the Persian Gulf. His landing site was not the mountains of Ararat, but the island of Bahrain. According to Bowen, Jewish priests 'discovered' the legend during the Babylonian exile and adopted it as a morality tale of what happens when you disobey God.

Bowen's scenario rests squarely upon the theories of the so-called 'higher critics' whose onslaught against the Old Testament has been maintained for the last 150 years. These critics insist that many Old Testament books – including Genesis – were written much later than traditionally supposed. In their view, many of the biblical accounts are little more than 'pious forgeries' cobbled together by a priestly class and then attributed to biblical characters to give them a spurious authority. These theories have been refuted many times by scholars such as Robert Dick Wilson and Oswald Allis. Yet they continue to be taught almost unchallenged in colleges and seminaries – corroding faith in the Bible for another generation.

Universal Flood

There is no question that the Babylonian and the biblical accounts are related, because they have many strong similarities. However, this does not mean that the Genesis account is simply an embellished version of an earlier legend. Flood stories have been recorded from many cultures worldwide – not just in the Near East. Common themes are found in many of them, such as a universal deluge, a favoured family saved, and birds sent out to test for dry land. The local flood theory does not explain why these stories are so widespread. The most reasonable answer is that they had a common origin in real history – which points us to a global event.

The Bible clearly speaks of the Flood in universal terms, so if Bowen is right we must ask serious questions about the authority of Scripture. We must also wonder about the character of God himself, for he declared unequivocally that he would never again send a flood like this one (Genesis 9:11). There have been many local and regional floods since Noah's day – so has God repeatedly broken his promise? Furthermore, if we question the historical record in Genesis, we place ourselves in the unenviable position of disagreeing with the Lord Jesus and his apostles. They always spoke of the Flood as a worldwide event – and as a sober reminder of judgement to come (Luke 17:27; Hebrews 11:7; 1 Peter 3:20; 2 Peter 2:5; 2 Peter 3:6). We are on safer ground if we humbly accept the record that God has given us in his inerrant and infallible Word.

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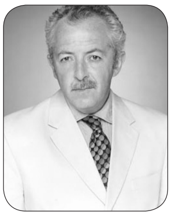
> "Bowen identified three main 'problems' with the biblical account.'



The Foundations of our Faith. 4:

The Doctrine of Man – Part One

J. H. John Peet

"What is man?" This is the question posed by the Psalmist, as translated in our English versions (Psalm 8:4). It is in keeping with the flow of the Psalm to paraphrase this as "How special man must be!" The Psalmist begins by expressing his amazement at the greatness of God – "How majestic is Your name…" – and then realises the implications for mankind in the light of the works of the Creator. He does, in fact, take us back to the first chapter of the Bible. So, what does the doctrine of Creation teach us about mankind?

Firstly, he is **the purpose of God's creative activity**. He is not an after-thought. He is not made to 'finish off' the creation. The earth and the universe were created as an environment for him. The Creation account shows God planning this creation and achieving it step by step until it was ready and then man was created. There is a clear parallel to the new creation in which the Lord Jesus tells us that He is presently preparing a home for us and when that is ready, He will come again for us. The universe is his home and is for his aid (for food, direction, clothing, light, heat, medicine, time management, and so on). How different the evolution scenario in which we are an accident, not a purpose.

Then we must ask, is man in **the likeness of God** or of the ape? The Bible teaches us plainly that he is made in the "image of God". We are the only creatures in the universe made to this pattern. This subject has been considered previously in *Origins* (Dowling, 1988; Peet, 1989). Since mankind is made in the image of God, as we perceive God in Genesis 1, so we will appreciate the true nature of man. For example, by this parallel, we see in this passage man's creativity, intelligence, communication, sense of community, lordship, morality, worship, etc. His lordship is demonstrated in that God named parts of the creation such as day, night and the stars (Isaiah 40:26) and man named the animals. The Psalmist picked on the same concept of the image of God in man (Psalm 8:6-8). The Christian evolutionist's attempts to limit man's likeness to God to the spiritual realm are inadequate. Man is not simply spiritual, but "body, soul and spirit" (e.g. Hebrews 4:12). As we shall see in a later part of this series, that image has been spoiled, but not eliminated.

Our true ancestry shows that our nearest relative is God! If man is an accident, where is his dignity? Is he a mutant? If we teach him that he is an animal, then we must not be surprised if he behaves like one! We recognise that the modern methods of biological classification put humans in the animal kingdom, for obvious reasons, but it is interesting that the Bible never classes man as an animal and distinguishes him from them. Are we just educated apes, their cousins? The evolutionist studies man through the animals (e.g. in psychology). The creationist will seek to understand man from his true nature in the image of God.

If God does not exist and Creation doctrine is false, where did **religion** come from? If we came from animals, then religion would not arise!

From this, we see that man's **responsibility is to care** for God's creation. In this is his glory (Psalm 8) which he lost at the Fall (Hebrews 2:8; Romans 3:23). The creation account determines our attitude to the environment which should be one of **stewardship**. Comparison of this with Psalm 72:8-11 makes it clear that God's view of lordship is a caring responsibility. Evolutionary theory encourages exploitation.

In the second part of this article, we will examine the implications of this doctrine of man in his daily life. A later part will explore further the implications of the Fall for this understanding of mankind.

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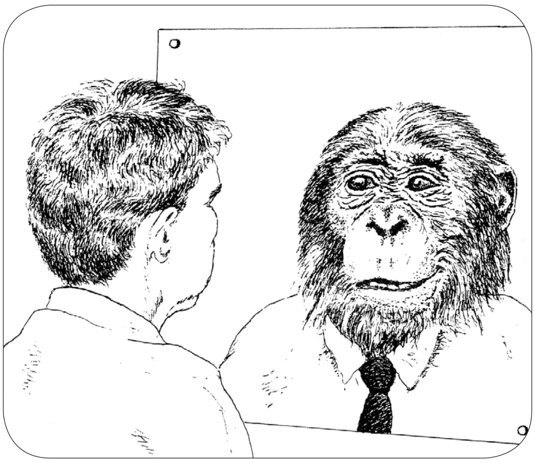

Reproduced with permission from: Peet, J.H.J. (1994). *In the Beginning, God Created*... Grace Publications. Illustration by Kevin Charman.

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'he is the purpose of God's creative activity.'

Creationism: Science Versus Faith in Schools

Monday 1st December 2003: The Newsroom, 60 Farringdon Road, London EC1R

Paul Garner

This event was organised by *The Guardian* newspaper and described as a one-day seminar for secondary school teachers, scientists and philosophers examining the impact of creationism on science education in a multi-faith society. Although I thought I might be the only creationist attending, two others were there on the day. There were about 40 delegates in total. While registering, I noticed a name badge prepared for Richard Dawkins, but to my knowledge he did not attend.

The morning session was held in a small lecture theatre at the Newsroom, opposite the main *Guardian* building. We were welcomed by **Tim Radford**, Science Editor of *The Guardian*. Quoting from Job chapter 38, he asserted that science has now answered many of the things that were mysterious in earlier years – but that the fundamental 'why' questions, relating to ultimate purpose, remain.

The first session was a forum entitled 'Is God an Evolutionist?' There were three panellists: **Professor Michael Reiss**, **Professor David Papineau**, and **Dr Khalid Annees**. Each was given a few minutes to speak and then there was a time of discussion with questions from the floor.

Professor Reiss, an ordained Anglican with a scientific background, described himself as a "mainstream Christian". He believed the evidence supporting evolution was "strong" and that the evidence supporting creation was "not strong". However, he said that we must understand that creationism made sense of the world for many people, and underpinned their religious values. Education should prepare us to live together, even with those who think differently from us. To this end, he felt that creationism ought to be taught about in schools, though perhaps not in science lessons.

Professor Papineau, a philosopher of science, claimed that the evidence for evolution was "overwhelming" and that there was no case to be made for "literal creationism". As examples of this evidence, he appealed to the geographic distribution of organisms, shared similarities, imperfect adaptations, fossil transitions, and breeding experiments. However, he found the developmental data most persuasive of all – including the "gills" in human embryos! Thus, he said it would be "reprehensible to teach creationism as true". Other matters touching upon religion and science, such as the anthropic principle, were, in his view, not so clear-cut.

Dr Khalid Annees was a Muslim academic. He mentioned the Five Pillars of Islam, one of which is belief in one God, the Creator. The separation of religion and science into separate "compartments" was a western development, and foreign to the Islamic worldview. He said that the Koran calls on Muslims to seek knowledge, and mentioned the contributions to science that Islam had made in the past. While he was happy to accept the idea of natural selection, he did not accept that evolution was a fact. He did not think that one "species" (he meant to say "kind") could turn into another.

In the question time, I expressed surprise that Professor Papineau had asserted that human embryos had "gills". The pharyngeal pouches have no respiratory function: they develop into the middle ear canals, the parathyroids, and the thymus. This was an example of the kind of misleading "evidence" prevalent in biology textbooks. In his reply, Professor Papineau said he wasn't an expert on these things, but asked why we had fluid in our ear if we had not evolved from fish! When a delegate from the National Secular Society said that creationism mustn't be allowed in the science class because it was opposed to all science, not simply biology, Tim Radford agreed, saying that this was "the subtext of the day". Another audience member objected to the way words were being used: we do not "believe" in evolution, we are persuaded by evidence.

The next session, entitled 'Seven Days in the Classroom', was a presentation by a biology tutor and her pupils from Islington Sixth Form College. **Sue Addinell** began by discussing the changing nature of the biology syllabus. In the 1990s there had been a shift away from theoretical aspects of biology (e.g. the evidence for evolution) towards the practical application of biological science (e.g. biotechnology). One current textbook has no mention of Darwin in its index. She had also noticed a change in attitudes among her pupils. In the 1970s most accepted evolution uncritically, in the 1990s there was a minority questioning it, and today she has 36 pupils – some Christians, some Muslims – but only two believe in evolution! She said that we must acknowledge the different views in the science classroom – to ignore them is not an option.

She then invited each of her pupils in turn to state their own position. Most made a courageous stand for their creationist beliefs before a sceptical audience. The final student to speak, a young Muslim lady, appealed to her listeners not to force the evolutionary view exclusively upon students.
In the question time afterwards, a biologist acknowledged the many problems with the standard presentation of evolution in school texts (mentioning the peppered moths and embryonic "gill slits"). He said that he had been forced, against his better judgment, to include the traditional horse series in a textbook he had written.

After a coffee break, **Angela Hall** of the Nuffield Curriculum Projects Centre gave a talk called 'Creation Myths: Science for Public Understanding'. She referred to two case studies the Centre had developed to promote classroom discussion: one on natural selection among cichlid fish and another on worldwide creation myths. I have since written to Angela Hall, enclosing a copy of Arthur Jones' *Genesis Agendum Occasional Paper* on speciation in cichlids. It was important, she said, to explore why evolution was controversial for some people – and that pupils must be allowed to come to their own conclusions. The issue under discussion at the seminar was not which view of origins was correct, but how we cope with others of different opinions. She was concerned, though, that "fundamentalists" don't have the freedom to change their views because they are based on an unchanging authority.

Professor Reiss then chaired a discussion with Angela Hall. An atheist in the audience said he thought that the teaching of evolution was in danger of being compromised by our respect for different cultures and religions. Another person said that gravity, like evolution, was a theory – but no-one doubts gravity. We needed to make clear to students the distinction between facts, laws, theories, and hypotheses.

The final session before lunch was a talk by **Professor Steve Jones** of University College, London, on 'The current state of evolutionary theory'. He likened the controversy over evolution to the debate about vivisection: he felt that opponents of both ideas were motivated by something other than the scientific evidence. Without Darwin, he asserted there could be no science of biology. He defined evolution as simply genetics plus time. As an analogy for descent with modification, he appealed to the construction of family trees showing the relationships between, for instance, the various Indo-European languages. Evolutionary trees were built in precisely the same way. He illustrated this with the HIV virus, which has diversified within the last 20-30 years. New varieties of the virus have arisen that infect different subsets of individuals. Furthermore, a "fossil" virus from 1959 was very similar to the "ancestral virus" that biologists had predicted. He claimed that he had never met a creationist who had been able to give a rational response to this evidence.

His talk plumbed the lowest standards of the day. It was peppered with throw-away lines about creationists that were intended to raise a laugh. He said that he didn't mind if creationists burned his books, so long as they bought them first. He said it was impossible to argue with a creationist – it was like wrestling with a greased pig. At another point he declared, "I don't know why so many Americans reject evolution when the evidence is right in front of them" – and then put up images of George Bush next to photographs of chimpanzees. His cheapest shot was to refer to the staff of Emmanuel College, Gateshead, as "those buffoons in the north of England". One wonders what needles a man so much that he must behave in such a juvenile fashion.

After lunch, we moved to a different room where **Professor Russell Stannard** gave a talk asking, 'Is Science Neutral?' He described the Genesis account as a "myth" that communicates insightful information. It was written at a time when wisdom was passed on by being grafted onto stories. It teaches us that life is a gift from God, that man is not complete without woman, that we were made to care for the Earth, etc. However, he claimed that it was never intended to be a literal account of our physical origins. In support of this view, he appealed to the writings of Augustine and Gregory of Nyssa. Professor Stannard further asserted that the literal view only came to prominence at the time of the Reformation and that the doctrine of the infallibility and inerrancy of Scripture is a late aberration. Creationists today were deemed guilty of upholding a grossly misguided view of the Bible. Professor Stannard rejected the creation account and the biblical fall ("there never was an ideal state"), and suggested that our traditional view of God has been swept away by the Big Bang theory. The human spirit "evolved" and some animals may even have a "rudimentary spirit". Thus, there is no qualitative difference between humans and other animals. Sin, he said, is simply the self-centredness that evolution has endowed us with.

Finally, delegates were divided into four groups for a brainstorming session. The aim was to identify some action points or recommendations on which we could all agree – a formidable task! There was little on which we all agreed, and the comments from creationists seemed to have been "filtered out" during the feedback time. The action points were collated and posted on the *Education Guardian* web site at **http://education.guardian.co.uk/conferences/story/0,,1111845,00.html**

Was it worth attending this seminar? Yes. It was gratifying to see creation being faced as a real issue in education – even if it is regarded as a 'threat'. It seems that the current generation is more willing than previous ones to challenge the evolutionary consensus. However, it was somewhat depressing to contrast the readiness of the Muslim students to take a stand on this issue with the way that Christians have, by and large, vacated the battlefield. It seems likely that the advance of multiculturalism will force creationism – of a Muslim variety – onto the educational agenda. Young Muslims are unlikely to be impressed by the liberal approach to Scripture – but if more Christians were serious about the Bible what opportunities might this open up for us to witness to our Muslim neighbours?

There were some opportunities for discussion with other delegates during the day. One young RE teacher that I talked with in the lunch queue seemed genuinely interested in the work I'm involved in – and I directed her to the BCS web site. Others had a crusading zeal against creationism, including a retired university geology lecturer, although his familiarity with creationist views seemed rather limited. Over lunch, I spoke to a biologist who was convinced he 'knew' what I believed as a creationist. When I told him that I didn't recognise the 'straw-man' he had constructed (for example, I do not accept the fixity of species as he claimed I must), he said I had no right calling myself a creationist! How do we combat this caricature?

Overall, the day was a reminder of how much work there is to be done to promote a genuine debate about the scientific evidence concerning origins and how it is to be interpreted. The fallaciousness of creationism was taken as a 'given' by virtually all those who took part. There was no acknowledgement of the naturalistic methodology that underpins the modern scientific enterprise. Science was presented as a matter of 'facts' and 'evidence' and religion as a matter of 'belief' and 'values'. The concern of most speakers and delegates was simply how to manage conflicting views in the classroom – but the truth of evolution remained unquestioned. Perhaps the Intelligent Design Movement – with its 'wedge' strategy – has something to teach us here. We desperately need well-informed and well-prepared Christians who can engage at events like this with real knowledge, wisdom, and insight. Or are we happy for the Muslim community to make all the running?

Obituaries

David C.C. Watson

A creationist pioneer is remembered by Paul Garner

David C.C. Watson, well-known as a speaker and writer on creation, died on 12th January 2004. He was 83. A memorial service was held at St Mary's Church, Broadwater, Worthing on 29th January 2004. A life-long Anglican, David was the author of two books about Genesis 1-11: *The Great Brain Robbery* (1975) and *Myths and Miracles* (1976). It is perhaps less well known that he also wrote about the New Testament: *Fact or Fantasy: The Authenticity of the Gospels* (1980) and The *Gospel According to Matthew: A Commentary* (1992).

David graduated as a senior scholar of Trinity College, Cambridge in 1947. For a time he served as a missionary in India, involved in Bible translation work. It was during his time in India that David developed his strong convictions about creation. Particularly influential were the writings of zoologist Hannington Enoch, a professor at Presidency College in Madras. David described Professor Enoch as a devout Christian who, after puzzling about evolution for many years, finally concluded that it was a "grand illusion". A series of articles written by the professor in the 1950s convinced David "that Genesis 1 and Exodus 20 could be, and should be, taken literally".

After serving as a missionary, David returned to his native England to teach. He was dismissed from his teaching job because of his unwillingness to compromise his convictions about the biblical account of creation, and lost his court battle for reinstatement. In the 1970s, David moved with his wife, Loraine, to the USA. While there, he served as Director of the Institute for Creation Research's Midwest Centre (in the Chicago area). Eventually they returned to England, where David was a sought-after speaker on creation.

It was my privilege to know David for many years. We lectured jointly about creation on several occasions. Even when the encroaching years meant that David felt it was time to 'hang up his lecturing hat', he was still keen to stay informed and pray for others involved in the work. He and Loraine lived not far from my home, and we met regularly to enjoy one of his wife's teas and a time of prayer. Following Loraine's death, he moved to Worthing to be closer to one of his three sons and I saw him less frequently, though we kept in regular contact by telephone and letters. This faithful servant, scholar and friend will be sorely missed.

Walter Lang

The founder of the Genesis Institute is remembered by Geoff Chapman

The Reverend Walter Lang, who was one of the pioneers of the modern creation movement, passed away on 10th July 2004 at the age of 90. In 1937 he graduated from Concordia Seminary, St Louis, Missouri, and served as a Lutheran minister in various parts of the USA until 1963, when he became executive director of the newly-formed Bible-Science Association (BSA). BSA began publishing the *Bible-Science Newsletter* and hosting large annual meetings with the leading creation speakers of the 1960s and 1970s. Rev. Lang, his late wife Valeria, and several other helpers kept the BSA running on a daily basis and mailing information out each month. He travelled widely speaking on biblical creation both at home and overseas.

Rev. Lang later left the BSA and formed the Genesis Institute, editing its magazine *The Ark Today*, which was a valuable resource for news and articles on creationism from around the world. He continued with this ministry until a couple of years before his passing. We thank God for the life of this dedicated, humble and unassuming man, who has now gone to his reward.

William D. Burrowes

A faithful Canadian worker is remembered by J. H. John Peet

We have received news of the death of William D. Burrowes, a creationist worker in Canada. He was a leader in the North American creation movement for many years. Mr Burrowes was a Rhodes Scholar at Oxford University, England. I heard from him several years ago in response to a paper I had written on chemical origins and since then Mr Burrowes has maintained an active interest in the work of BCS. His wife, Margaret, wrote giving us news of his death and asked, "Please remember that Mr Burrowes derived great pleasure from all your organisation and he himself did in support of service to the Lord." We thank God for his support and service and pray that the Lord will raise up others like him for this great work.

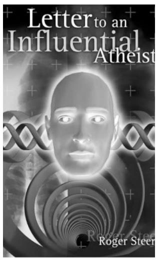
The obituary of David C.C. Watson is reprinted from *Evangelicals Now* (March 2004), with kind permission of the editors. Readers can obtain more information by writing to *Evangelicals Now*, 14 Silverleigh Road, Thornton Heath, Surrey CR7 6DU. Telephone: 020-86896252. Fax: 020-86650994. Email: subs@e-n.org.uk. Web site: http://www.e-n.org.uk.

The obituary of Rev. Walter Lang is reprinted from *Creation Update* (Autumn 2004), with kind permission of the editor. Readers can obtain more information by writing to *Creation Resources Trust*, P.O. Box 3237, Yeovil, Somerset BA22 7WD. Telephone/Fax: 01935-850569.
Email: Geoff@c-r-t.fsnet.co.uk. Web site: http://www.c-r-t.co.uk.

Book reviews

Letter to an Influential Atheist by Roger Steer. Authentic Lifestyle, Carlisle. 2003. 150 pp. Price £7.99. ISBN 1-85078-478-7.

Reviewed by Paul Garner



This book is an open letter to Professor Richard Dawkins, Oxford biologist and well-known atheist. The author is a trustee of the Bible Society and a tutor both for the University for Industry and the Methodist Church's *Faith and Worship* training programme.

The aim of the 'letter' is to challenge Dawkins' assertion that the mystery of our existence has been solved by Darwin's theory of evolution, and to present a case for the existence of God. Steer makes some telling points. He exposes Dawkins' illogical reasoning and the shaky foundations of his dogmatism. He argues that the comprehensibility and mathematical elegance of the universe makes more sense in a Christian worldview than an atheistic one. Dawkins says that human beings are nothing more than 'survival machines' for passing on their genes. Steer points out that such extreme reductionism fails to explain why we spend so much of our time engaged in activities that have nothing to do with survival.

However, the book is, in my view, severely compromised by its author's own acceptance of evolutionary theory. He says (p.4): "I am not a so-called 'creationist'. I happily accept that evolution by natural selection is a good description of the process that produces biological diversity." Steer also implies that there is no opposition to evolutionary theory from the field of biology (pp.8, 47), but this isn't true. What about the many research biologists who identify themselves as creationists or intelligent design theorists?

At the outset Steer concedes far too much ground to Dawkins.

There are other problems. Steer advocates the concept of creation as a continuous process (pp.117-118) without explaining how this can be reconciled with Genesis 2:1-3. He appeals to the Church Fathers to defend a figurative understanding of Genesis (pp.113-114), but almost all the ancient writers stood for a straightforward historical reading. His longest chapter is devoted to a consideration of Alfred Russell Wallace, co-discoverer with Darwin of natural selection. Although there is a proviso (p.20), Steer wants us to regard Wallace as a model of someone who can accept evolutionary theory without being led to atheism. But Wallace was a mystic and spiritualist – is he really someone we want to champion? I am also uncomfortable with the description of Emma Darwin as "a devout (Unitarian) Christian" (p.12), suggesting that it is possible to be both. Sadly, I cannot recommend this book.

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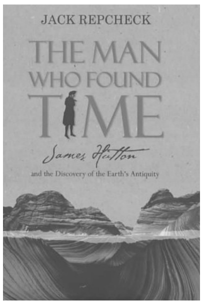
The Man Who Found Time: James Hutton and the Discovery of the Earth's Antiquity by Jack Repcheck.
Simon and Schuster, London. 2003. 247 pp. ISBN 0-7432-3189-9.

Reviewed by Paul Garner



The subject of this book is James Hutton (1726-1797), regarded today as the father of modern geology and credited with the 'discovery' of geological time. Hutton's name is particularly associated with the famous unconformity at Siccar Point on the Berwickshire coast which he visited with John Playfair and James Hall in 1788. Here, reasoned Hutton, a cycle of events could be 'read from the rocks' – sedimentation, uplift, erosion, and then renewed sedimentation. Hutton maintained that very large amounts of time were essential for this cycle of events to take place. He observed that today the land is being worn down slowly and sediments are building up gradually – and he insisted that only those forces that are seen to be currently acting may be invoked to explain the record of the Earth's past. To Hutton this meant that a geological cycle, such as the one represented at Siccar Point, must have taken an immense period of time to complete. In the 1830s, Charles Lyell built upon Hutton's foundation in developing the principle of uniformity – a doctrine that has dominated geological thinking ever since. (For a catastrophist approach to the field evidences at Siccar Point, see David Tyler's article on the BCS web site.[1])

The story of James Hutton is undoubtedly an engaging one and this book by historian Jack Repcheck is worth reading for the insights that it gives into the man and his times. It was fascinating to read about the historical milieu into which Hutton was born and the influences upon his thinking from tutors and books. Nevertheless, you are advised to read this account of Hutton's life with great caution! It perpetuates the warfare model of the interaction between science and theology that was popularised by Andrew Dickson White in 1896. According to this view, a blind adherence to the Bible and Christianity prevented scientific enquiry until brave souls like Copernicus, Hutton and Darwin dared to challenge the religious consensus. Until then, people had blindly followed the biblical documents and suppressed any rational investigation of the natural world. This is a gross misreading of history but it's the perspective that this author wants to leave with you. Repcheck's prologue alone contains so many contentious statements about the history of science that it's difficult to know where to begin unpicking it all. Here is an example:

> "...the reverence accorded to biblical answers caused problems, the most serious being that it prevented rigorous and systematic examination of the very world that God had created. Scholars who investigated fields that did not touch on church doctrine were relatively unaffected, but those

> who explored the natural world were playing with fire – the figurative fire of controversy, the real fire of the heretic's pyre, and the eternal fire of damnation if the church felt they had stepped too far." (p.2)

The belief that an obscurantist church actively persecuted scholars has become deeply embedded in the public consciousness – but is it true? Was it ever the case that investigators of the natural world faced "the real fire of the heretic's pyre"? At this point, the story of Galileo's heroic stand for the truth of heliocentrism against the Inquisition is usually raised – but it is largely a myth. Schirrmacher (2000) has shown that, contrary to legend, Galileo and the Copernican system were well-regarded by church officials and he was only the victim of his own arrogance, the envy of his colleagues and the politics of Pope Urban VIII. Besides Galileo, virtually the only other name that is mentioned to support the claim of persecution is that of Giordano Bruno – although he was a philosopher rather than a scientist. Bruno is said to have been burnt at the stake in February 1600, although there is little agreement about why he was executed – if, in fact, he was executed at all! There are no contemporary accounts of Bruno's trial, sentence, or execution and the source of the story appears to be a rather dubious letter discovered by a Lutheran pastor, Jean-Henri Ursin (1608-1667), which may be a fake. For real examples of the persecution of scientists we need to look to modern times – but then we find that the persecution has been carried out by atheistic revolutionaries, communists and fascists![2,3]

Notes

1. Tyler, D.J. *Revisiting Hutton's unconformities*, http://www.biblicalcreation.org.uk/scientific_issues/bcs100.html

2. Dr Arthur Jones, personal communication, 15th September 2004.

3. Readers are reminded that *Origins* has carried several previous contributions relevant to Hutton and Galileo: Tyler (1989a; 1989b; 1997).

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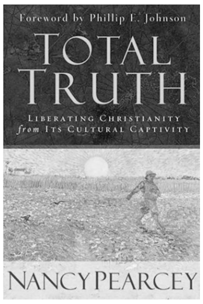
Total Truth: Liberating Christianity from Its Cultural Captivity

by Nancy R. Pearcey and Phillip E. Johnson.
Crossway Books. 2004. 479 pp. ISBN 1-5813-4458-9.

Reviewed by William Wichterman,
Policy Advisor for the US Senate Majority Leader, Bill Frist



An evangelical Christian who works on Capitol Hill once told me that God put him there just so he could share the gospel with his colleagues. Sadly, he's not alone in thinking that God cares only about saving souls, and is uninterested in the legislative battles raging in Congress, much less the renewing of the culture through the arts, academia and entertainment.

True, most orthodox Christians think that God hates abortion and is not so thrilled about same-sex marriage. But beyond those 'culture-war' issues, many of them have no idea that their faith has implications for all public policies, from welfare to transportation to taxation. They are privately spiritual, but publicly agnostic.

Nancy Pearcey's new book, *Total Truth*, was written to shake them up. Her central thesis is that Christianity is not just religious truth, but truth about all of reality. It is a comprehensive worldview. As such, it is meant to straighten out God's creation which has been twisted by sin. This, Pearcey says, includes not just the Great Commission to bring others to faith, but a cultural commission to bring health to every aspect of human experience, from network television and Broadway plays to biology and astronomy.

Unfortunately, too many American evangelicals have bought into the lie that it is 'true for me' or true about a slice of reality, but not true for everybody and true for explaining the world.

Pearcey seeks to uproot the historic anti-intellectual tendencies of American evangelicalism that have contributed to its banishment from the public square.

She traces the long tradition in American evangelicalism of emphasizing the spiritual dimension and denigrating the intellect. Some early American evangelicals like George Whitfield and Jonathan Edwards managed to make Christianity a passionate, personal experience without compromising the life of the mind. Sadly, much of evangelicalism quickly devolved to a privatized faith that transformed one's personal life but was indifferent if not hostile to rigorous thought.

Even as evangelicals gained hearts, they surrendered their minds to secularism.

As Darwinism gained traction in academia, Christians further retreated to the realm of personal values. In the end, they were left with a 'two-realm theory of truth' in which the upper story holds the private/spiritual/nonrational/noncognitive dimension, and the lower story the public/scientific/rational/verifiable. The upper story became 'true for me', and the 'lower story' simply fact. Challenging this bifurcation of reality is step one in liberating Christianity to shape every aspect of culture, argues Pearcey.

Step two is challenging the philosophical naturalism that masquerades as science.

Pearcey has spent years writing about the philosophical underpinnings of Darwinian macro-evolution. Her rigorous logic makes clear that until Christians challenge the naturalism that begins with the assumption the universe is closed and there is no God, they will fight a losing battle for the soul of the culture.

That may explain why Americans are among the most religious people on the planet, yet whose cultural elites in academia, media and entertainment are among the most secular.

She closes the book by showing that true spirituality is rooted in a comprehensive Christian worldview. If Christianity really is the total truth about the world, then it is logical that the life of the spirit not be relegated to a private, mystical experience, but is necessarily open to facts, reason, evidence and wed to one's everyday activities.

Pearcey skillfully explains difficult concepts in plain language. Her formal education in theology and philosophy – in Germany, Canada, the US – combined with her conversational writing style, make her otherwise dense subject matter easily digestible. Perhaps this is so because she's a homeschooling mum. Or maybe because she's a former atheist who wrote a paper on 'Why I'm not a Christian' when she was still in her teens and long before she learned of Bertrand Russell. Her grappling with philosophy has not been esoteric but a lived experience of great personal consequence.

Pearcey's work reflects the life and thought of her mentor, the late Francis Schaeffer, who hosted seekers at his chalet in the Swiss Alps in the 1960s and 1970s. After rejecting the faith of her parents and embracing the despair of nihilism and the drug culture, Pearcey was won over by Schaeffer's rigorous intellect and his passionate conviction that Christianity was meant to renew every part of the culture.

But if you're looking for a simple redux of Schaeffer's work, look elsewhere. Pearcey advances well beyond Schaeffer, both in the maturity of her thought and in her original work with source documents.

Total Truth is written with evangelicals in mind, but it should be read by orthodox Christians of whatever theological stripe who want to understand the strengths and weaknesses of the American religious tradition, dominated as it has been by evangelicals. It will help them see more clearly the flawed view of knowledge that has relegated Christianity to the private sphere and muted its witness in what seems to be a pervasively religious population.

The issue is not the number of Christians, but their ability to let their religious convictions shape their view of the world. For when Christianity is no longer just an affair of the heart but a total picture of the world as it actually is, its power is unleashed to transform culture from top to bottom.

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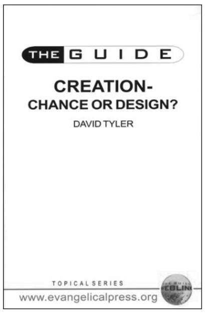
The Guide: Creation – Chance or Design? by David J. Tyler. Evangelical Press, Darlington. 2003. 221 pp. Price £8.00. ISBN 0-85234-544-5.

Reviewed by J. H. John Peet



THE GUIDE

CREATION-
CHANCE OR DESIGN?
DAVID TYLER

TOPICAL SERIES
www.evangelicalpress.org

David Tyler (Secretary of the Biblical Creation Society) has done a great service in this handy and thoughtful little book. It is different from most other creation-evolution books in that it is built around Scripture and that is used to lay down the principles for interpreting the science, which he shows to be consistent with God's revelation in Genesis 1-4. His aim is clearly to challenge those who have not confronted holistically the issue of what the Bible says on this matter of origins.

In this book, David starts with a biblical passage, gives an introduction to the theme selected and explains the issues arising. Each chapter contains practical tasks for the reader (or group) to tackle before completion of the explanation. There are useful questions at the end of the chapter to consolidate the principles raised.

Even as an experienced 'creationist' speaker, I found plenty of useful and thought-provoking material. As a chemist, I could appreciate his comment, "Darwinists are the alchemists of biology" (p.205)! There is a useful section on the relationship between miracles and providence. A number of 'matters arising' are usefully tackled, such as environmental responsibility, work, marriage and the use of the 'seventh day'. Three chapters at the end of the book examine the case for creation and against evolution.

David makes a good point relating to intelligent design (ID). Some scientists try to rule out the ID movement as a science because they claim science is a purely materialistic interpretation of the universe. A lot of scientific methodology is based on this. So, for example, scientists tend to write their research reports in the indirect form: 'The system underwent such-and-such a change' rather than 'I put the acid into the flask'. However, to rule intelligence out of the equation is false science (p.197). Archaeology depends on understanding that intelligent beings were involved in the discovered situations. They were not the result of impersonal events. Similarly, the study of humans involves a study of the mind.

The fifteen chapters make a good series of personal or group studies for folk of all ages and backgrounds. A good investment!

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